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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/596,556	06/19/2000	John Petter Fjeldstad	1380-0148	4133

2292 7590 07/16/2002

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EXAMINER

ANGEBRANNDT, MARTIN J

ART UNIT	PAPER NUMBER
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1756

DATE MAILED: 07/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

MF-2

Office Action Summary**Application No.**

09/596,556

Applicant(s)

FJELDSTAD ET AL.

Examiner

Martin J Angebrannt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/7/01, 10/10/00, 6/19/00 and 5/21/02.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 13-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) 1-17 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 & 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. The response provided by the applicant has been read and given careful consideration.
2. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claim 1-12, drawn to a method for recording in thermoplastic materials, classified in class 430, subclass 2.
 - II. Claims 13-17, drawn to an apparatus for recording in thermoplastic materials, classified in class 359, subclass 35.

The inventions are distinct, each from the other because of the following reasons:

3. Inventions group I and group II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the delays between the various steps may be timed without a separate circuit, using a watch or the like, only one corona charging circuit is needed and only one temperature controlling circuit is needed and these may be adjusted during the process.
4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification and because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper, restriction for examination purposes as indicated is proper.
5. A telephone call was made to Mark Olds on 12/20/2001 to request an oral election to the above restriction requirement, but did not result in an election being made.

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Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

7 Applicant's election of group I (claims 1-12) in Paper No. 8 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 13-17 are withdrawn from consideration.

8 The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9 Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

"performing registration" should read – recording- - or - - forming- - . (claim 1/line 1)

"new registrations" should read - - recording additional holograms—(claim 1/line9)

"resetting" should read - - erasing- - (claim 1/line 9) to be congruent with line 10 of claim

1)

In claim 2, at line 2, please delete "to be".

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In claim 7, the zeroth order is not diffracted, but only specularly reflected or transmitted (depending upon the layout of the holographic system). Only the first or higher orders are actually diffracted. This may be a means for reducing the error in the diffraction efficiency measurement as determining the ratio of the higher orders divided by the zero order would provide compensation for temporal variation in the intensity of the measuring laser. If this is the case, the measurement of the higher orders should be recited as well.

10 A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 4 recites the broad recitation 15-40 degrees C, and the claim also recites 36 degree C, which is the narrower statement of the range/limitation.

11 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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12 Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over **either** Okushko, V.A., et al., 'Recording of double expopsure holographic interferograms on photothermoplastic materials using residual memory.', Avtometriya Vol. 4 pp. 86-90 (1994) or Panasyuk et al., 'Process of double-exposure interferogram formation on deformed surface of thermoplastic media. SPIE vol. 2851, pp. 150-157 (08/1996), in view of Augostini '885, Bean et al. '938 and Schwertz '698 combined with Levine '008 and Bartfai '643.

Okushko, V.A., et al., 'Recording of double expopsure holographic interferograms on photothermoplastic materials using residual memory.', Avtometriya Vol. 4 pp. 86-90 (1994) describes the recording of a first hologram in a thermoplastic recording medium including heat development and erasure and the recording of a second hologram so that both the first (residual) hologram and the second hologram are produced during development. The examiner has only had a spot translation of this reference. If the applicant has one made, the examiner would appreciate a copy with the next response.

Panasyuk et al., 'Process of double-exposure interferogram formation on deformed surface of thermoplastic media. SPIE vol. 2851, pp. 150-157 (08/1996) teaches the formation of a double exposure hologram by corona charging a thermoplastic recording medium, exposing the hologram to achieve a value of 4.5% diffraction efficiency, partial heat erasure, recharging the thermoplastic recording medium and exposure of the second holographic image to produce a double interferogram. (pages 151-152) see the data in figures 1 and 3.

Augostini '885 teaches the erasure of deformation images in thermoplastic recording media by heating and simultaneous uniform exposure to light. (1/59-62)

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Bean et al. '938 teaches the use of heating, shorting of the conductive layer and uniform light exposure in erasing thermoplastic recording media. (4/1-16)

Schwartz '698 teaches the use of uniform light irradiation to dissipate the charge in the photoconductive layer along with heating of the thermoplastic recording medium. (6/55-66)

Levine '008 teaches the use of light to heat the thermoplastic recording layer to facilitate heat erasure. The use of photo flashlamps for this is disclosed. (3/64-72).

Bartfai '643 teaches the use of a flashlamp to provide the illumination for recording grating patterns from a resolution target in a thermoplastic recording medium. (7/29-52).

It would have been obvious to modify the inventions of **either** Okushko, V.A., et al., 'Recording of double exposure holographic interferograms on photothermoplastic materials using residual memory.', *Avtometriya* Vol. 4 pp. 86-90 (1994) or Panasyuk et al., 'Process of double-exposure interferogram formation on deformed surface of thermoplastic media. SPIE vol. 2851, pp. 150-157 (08/1996) by including uniform exposure during the heat erasure treatment to add additional heating power and dissipate charges in the medium as taught by Augustini '885, Bean et al. '938 and Schwartz '698 and further it would have been obvious to use a flashlamp as the uniform exposure sources based upon the teaching that it provides heating capacity and charge movement in photothermoplastic recording media as evidenced by Levine '008 and Bartfai '643. The number of references serve to establish the well known character of these aspects of the claimed invention and provide additional motivation for the combination of these features.

13 Claims 1, 2 and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over **either** Okushko, V.A., et al., 'Recording of double exposure holographic interferograms on

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photothermoplastic materials using residual memory.', Avtometriya Vol. 4 pp. 86-90 (1994) or Panasyuk et al., 'Process of double-exposure interferogram formation on deformed surface of thermoplastic media. SPIE vol. 2851, pp. 150-157 (08/1996), in view of Augustini '885, Bean et al. '938 and Schwartz '698 combined with Levine '008 and Bartfai '643 and SU 1805445.

SU 1805445 describes the epoxypropylcarbazole with 5% butylglycidyl ether sensitized with 3% of a TNF derivative. (col.3/lines 24-36) This is corona charge, exposed, developed and erased using heating. The measurement of the diffraction efficiency including a measurement of the zero order is disclosed. (abstract) Note the diffraction efficiency appearing in column 4.

It would have been obvious to modify the combination of **either** Okushko, V.A., et al., 'Recording of double exposure holographic interferograms on photothermoplastic materials using residual memory.', Avtometriya Vol. 4 pp. 86-90 (1994) or Panasyuk et al., 'Process of double-exposure interferogram formation on deformed surface of thermoplastic media. SPIE vol. 2851, pp. 150-157 (08/1996), in view of Augustini '885, Bean et al. '938 and Schwartz '698 combined with Levine '008 and Bartfai '643 as set for the above by measuring both the zero order and a higher order to allow the measurement of the diffraction efficiency to be corrected for intensity variations in the laser during measurement as taught by SU 1805445. Further it would have been obvious to modify the combination of **either** Okushko, V.A., et al., 'Recording of double exposure holographic interferograms on photothermoplastic materials using residual memory.', Avtometriya Vol. 4 pp. 86-90 (1994) or Panasyuk et al., 'Process of double-exposure interferogram formation on deformed surface of thermoplastic media. SPIE vol. 2851, pp. 150-157 (08/1996), in view of Augustini '885, Bean et al. '938 and Schwartz '698 combined with Levine '008 and Bartfai '643 as set for the above by using the recording medium of SU 1805445

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with a reasonable expectation of achieving comparable results based upon their disclosed equivalent function.

14 Claims 1, 2 and 7-12 are are rejected under 35 U.S.C. 103(a) as being unpatentable over **either** Okushko, V.A., et al., 'Recording of double expopure holographic interferograms on photothermoplastic materials using residual memory.', Avtometriya Vol. 4 pp. 86-90 (1994) or Panasyuk et al., 'Process of double-exposure interferogram formation on deformed surface of thermoplastic media. SPIE vol. 2851, pp. 150-157 (08/1996), in view of Augustini '885, Bean et al. '938 and Schwartz '698 combined with Levine '008 and Bartfai '643 and SU 1805445 and further in view of Belonozhko, A.M., et al. 'The control or erasure of holograms on thermoplastric carbazole containing polymeric semiconductors', Zh. Nauchn. Prikl. Fotogr. Kinematogr. Vol. 33(2) pp. 133-135 (1988)

Belonozhko, A.M., et al. 'The control or erasure of holograms on thermoplastric carbazole containing polymeric semiconductors', Zh. Nauchn. Prikl. Fotogr. Kinematogr. Vol. 33(2) pp. 133-135 (1988) teaches that the exposure of the recording medium to light before erasure reduces the temperature required as does the lowering of the erasure temperature gradient.

In addition to the basis provided above, the examiner cites Belonozhko, A.M., et al. 'The control or erasure of holograms on thermoplastric carbazole containing polymeric semiconductors', Zh. Nauchn. Prikl. Fotogr. Kinematogr. Vol. 33(2) pp. 133-135 (1988) to further support the contention that the use of uniform illumination in combination with heating is known to reduce the heating requirements in the photothermoplastic art and constitutes a recognized benefit promoting the combination of **either** Okushko, V.A., et al., 'Recording of

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double exposure holographic interferograms on photothermoplastic materials using residual memory.', *Avtometriya* Vol. 4 pp. 86-90 (1994) or Panasyuk et al., 'Process of double-exposure interferogram formation on deformed surface of thermoplastic media. *SPIE* vol. 2851, pp. 150-157 (08/1996), in view of Augustini '885, Bean et al. '938 and Schwartz '698 combined with Levine '008 and Bartfai '643 and SU 1805445.

15 Claims 3-6 are objected to as allowable over the prior art, but rejected under 35 USC 112 and being dependent upon rejected claims.

16 The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zhovtanetskii, O.I., et al. 'Use of parasitic memory in thermoplastics in holographic interferometry', *Avometriya*, Vol. 1 (1-2/1983) pp. 99-101. (abstract only), note translation in 'Optoelectronics, Instrumentation and Data Processing' The examiner cannot get the actual reference or its translation.

Stolyarenko, 'Real-time holographic camera', *SPIE* Vol. 3486 (06/1997) teaches photothermoplastic recording apparatus.


Panasyuk, L.M., et al., 'Some characteristics of relief formation on photothermoplastic carriers used in double exposure interferometry', *Tech. Phys.* Vol. 42(8) pp. 923-925 (08/1997, Wu, Pei-ji, et al., 'Double exposure interferometry using memory effect of the photoconductive thermoplastic film., *Kexue Tongbao*, Vol. 24(22) pp. 1031-1032 (11/1979) and Galaburda, O.V., et al., 'Dynamics of double exposure recording on photothermoplastic substrate by pulsed laser radiation', *Avtometriya* Vol. 1 pp. 18-22 (1991) establish that double exposure using thermoplastic recording media is well known in the art.

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17 Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J Angebranndt whose telephone number is 703-308-4397. The examiner can normally be reached on Mondays-Thursday and alternative Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Martin J Angebranndt
Primary Examiner
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July 12, 2002